

1. Using a local anesthetic or a mixture of several local aneshetics in preparing an agent treating joint pains,

characterized in that

(A) The local anesthetic or the mixture of local aneshetics is dissolved in a bio-compatible solvent,  
5 and

(B) The local anesthetic is selected from that group which is toxic to axons and the nociceptive nerve endings

2. Application as defined in claim 1, characterized in that the local anesthetic is  
10 predominantly toxic to pain-conducting (nociceptive) nerve fibers.

3. Application as claimed in either of claims 1 and 2, characterized in that the local anesthetic is less neurotoxic to motor and propioceptive nerve fibers than to sensitive nerve fibers.,

15 4. Application as claimed in one of claims 1 through 3, characterized in that the local anesthetic is used at a concentration larger than 4 %.

5. Application as claimed in claim 5, characterized in that the local anesthetic is used jointly with an acidic additive lowering the pH value.

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6. Application as claimed in claim 5, characterized in that the additive is a bisulfite.

7. Application as claimed in claim 6, characterized in that the additive is a bisulfite, preferably sodium bisulfite ( $\text{NaHSO}_3$ ).

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8. Application as claimed in one of claims 5 through 7, characterized in that the additive is used at a concentration of at least 1 % by weight, preferably at least 2 % by wt.

9. Application as claimed in one of claims 5 through 8, characterized in that the pH-lowering additive lowers the agent pH to less than 3.5, preferably to less than 3.2.

10. Application as claimed in one of claims 5 through 9, characterized in that the local anesthetic is an amide.

10 11. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is lidocaine, preferably at a concentration larger than 6 %.

12. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is prilocaine, preferably at a concentration larger than 3 %.

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13. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is mepivacaine, preferably at a concentration larger than 5 %.

14. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is bupivacaine, preferably at a concentration larger than 1.5 %.

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15. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is levobupivacaine, preferably at a concentration larger than 5 %.

16. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is ropivacaine, preferably at a concentration larger than 2 %.

17. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is etidocaine, preferably at a concentration larger than 2 %.

18. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is procaine, preferably at a concentration larger than 3 %.

19. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is chlorprocaine, preferably at a concentration larger than 3 %.

20. Application as claimed in one of claims 5 through 10, characterized in that the local anesthetic is tetracaine or a substituted tetracaine, preferably N-butyl-tetracaine.

21. Application as claimed in claim 20, characterized in that the local anesthetic is used at a concentration larger than 4 %, preferably larger than 6 %.

22. Application as claimed in claim 21, characterized in that the local anesthetic is used at a concentration larger than 6 %, preferably larger than 8 %.

23. Application as claimed in one of claims 5 through 22, characterized in that a mixture of at least two different local anesthetics is used, preferably jointly with a bisulfite or other pH-lowering substances.

24. Application as claimed in claim 23, characterized in that a mixture of three or four local aneshetics is used.

25. Application as claimed in either of claims 23 and 24, characterized in that a  
5 mixture of tetracaine and bupivacaine is used.

26. Application as claimed in one of claims 5 through 25, characterized in that the local anesthetic is used in pure, enantiomeric form.

10 27. Application as claimed in one of claims 1 through 26, characterized in that the neurotoxic substances belong to the following group: bisulfites, preferably alkali bisulfites.

28. Application as claimed in one of claims 5 through 27, characterized in that a phenol or a phenol derivative inclusive analogues and their pharmacologically acceptable salts  
15 are used in addition to the local anesthetic.

29. Application as claimed in claim 28, characterized in that the phenol derivatives belong to the group of cresols, in particular ortho-, meta- and para-cresols and their derivatives.

20 30. Application as claimed in claim 29, characterized in that the chloro-cresols comprise in particular 2-chloro-m-cresol, 3-chloro-p-cresol, 4-chloro-m-cresol, 3-chloro-o-cresol, 6-chloro-o-cresol, 2-chloro-p-cresol, 5-chloro-o-cresol, 6-chloro-m-cresol and 4-chloro-o-cresol.

31. Application as claimed in claim 28, characterized in that the phenol derivatives  
25 belong to the group of eugenols and their derivatives.

32. Application as claimed in claim 28, characterized in that the phenol derivatives belong to the group of the thymols and their derivatives.

5           33. Application as claimed in one of claims 1 through 32, characterized in that an x-ray contrast agent is used in addition to the neurotoxic substances and preferably contains gadolinium, iodine or barium.

10           34. Application as claimed in one of claims 1 through 33, characterized in that glycerin is used preferably at a concentration of 10 to 95 % by wt in addition to the neurotoxic substances.

            35. Application as claimed in one of claims 1 through 34, characterized in that steroids are used in addition to the neurotoxic substances.

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            36. Application as claimed in one of claims 1 through 35, characterized in that a vasoconstrictor, preferably Adrenalin, noradrenaline, phenylephrine or ornipressine, is used in addition to the neurotoxic substances.

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            37. Application as claimed in one of claims 1 through 36, characterized in that the neurotoxic substances are dissolved in a biocompatible solvent, preferably in glycerin, iophendylate or propyleneglycol.

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..... 38. Application as claimed in one of claims 1 through 37, characterized in that the neurotoxic substances are used for purposes of denervating and neurolysis in the degeneratively diseased joints.

39. Application as claimed in one of claims 1 through 37, characterized in that a permeation enhancer, preferably dimethyl sulfoxide, is used in addition to the neurotoxic substances.

40. Method treating joint pains,  
characterized in that  
one local anesthetic or a mixture of several local anesthetics is injected into the intra-capsular region or into the joint synovial pouch of the pain-afflicted joint, the local anesthetic or the mixture of several local anesthetics being dissolved in a bio-compatible solvent and the local anesthetic being selected from that group which is toxic to the axons and to the nociceptive nerve endings.

41. Method for treating joint pain as claimed in claim 40, characterized in that the a local anesthetic or a mixture of several local anesthetics is dissolved in a bio-compatible solvent and in that preferably a liquid volume of 0.1 to 150 ml is injected into the intra-capsular region or into the joint synovial pouch of the pain-afflicted joint.

42. Method as claimed in either of claims 40 and 41, characterized in that the nociceptive nerve fibers are rendered pain-insensitive by the local anesthetic or the mixture of several local anesthetics for at least 14 days, preferably at least 8 weeks.

5           43. Method as claimed in one of claims 40 through 42, characterized in that the local anesthetic or the mixture of several local anesthetics is used at a concentration entailing neurolysis.